

<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)</b>						<b>February 2002</b>						
BUDGET ACTIVITY <b>7 - Operational system development</b>				PE NUMBER AND TITLE <b>0305206A - Airborne Reconnaissance Adv Development</b>			PROJECT <b>K98</b>					
COST (In Thousands)				FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
K98	MASINT SENSOR INTEGRATION (JMIP)			4864	10972	4882	4832	5182	5473	5561	Continuing	Continuing
<p><b><u>A. Mission Description and Budget Item Justification:</u></b> This project continues development of advanced tactical reconnaissance and surveillance sensor technologies and develops technology for the on-board fusion of multidiscipline intelligence sensors, i.e. Signals Intelligence (SIGINT), Moving Target Indicator/Synthetic Aperture (MTI/SAR) Radar, and Measure and Signature Intelligence (MASINT). Hyperspectral, multi-spectral, interferometric synthetic aperture radar sensors, advanced target and image exploitation software will be developed for imagery intelligence (IMINT) and MASINT applications. The Hyperspectral Longwave Imager for the Tactical Environment (HyLITE) develops the next generation airborne day/night hyperspectral reconnaissance sensor for the detection and identification of camouflaged and concealed targets in all terrain environments. The Signals Warfare Project Office will develop MASINT/IMINT technologies for Aerial Common Sensor (ACS). The Interferometric Synthetic Aperture Radar (IFSAR) Program provides the capability to rapidly generate three-dimensional (3-D) high resolution Digital Terrain Elevation Data (DTED III-V). This data will be used in the generation of high-resolution digital terrain databases to support crisis response and force projection operations within the joint force commander timelines. The IFSAR development supports the Rapid Terrain Visualization (RTV) Advanced Concept Technology Demonstration (ACTD). Future efforts will be directed toward the development of advanced multi-mode Electrooptic/Infrared (EO/IR), multi-mode MTI/SAR radar, foliage penetration radar, multi-spectral/hyperspectral imageries (MSI/HSI), MASINT on-board fusion and registration, and cueing of the EO/IR/SAR/HSI imaging sensor. FY02/03 funds continue MTI/SAR and MSI/HSI technology development and supports the integration of these for system demonstrations.</p> <p>MASINT was provided a supplemental fund called Defense Emergency Response Fund (DERF), as a non-add, for the following fiscal years with amounts: FY03 \$3.0M, FY04 \$3.0M, FY05 2.0M, and FY06 \$2.0M.</p> <p>This system supports the Objective transition path of the Transformation Campaign Path (TCP).</p> <p><b><u>FY 2001 Accomplishments:</u></b></p> <ul style="list-style-type: none"> <li>• 1905      -Completed CDR of HyLITE system                         -Conducted fabrication of HyLITE spectrometer components                         -Conducted an IPT to discover and remedy problems with detector/ROIC hybrid (HyLITE)                         -Conducted spectral algorithm development for HyLITE day/night system</li> <li>• 2959      -Collected IFSAR data and developed/processed high resolution data sets over several CONUS sites and 2ID OCONUS Areas of Interest</li> </ul>												

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<p><b><u>FY 2001 Accomplishments: (Continued)</u></b></p> <p>-Completed evaluation of military utility of IFSAR sensor, data, Rapid Terrain Visualization (RTV) process and products with XVIII ABN, III Corp and Eighth USA</p> <p>Total 4864</p> <p><b><u>FY 2002 Planned Program</u></b></p> <ul style="list-style-type: none"> <li>• 6069 -Complete fabrication of HyLITE system</li> <li>-Conduct HyLITE system characterization, day/night data collections and real-time demonstration</li> <li>-Conduct HyLITE algorithm development, data and target detection performance analysis</li> <li>-Restart HyLITE stabilization and midwave high-resolution imager efforts for tactical capability</li> <li>• 4903 -Award ACS technology contract(s) for the development of multi-mode MTI/SAR/MSI/HSI/EO/IR capabilities</li> </ul> <p>Total 10972</p> <p><b><u>FY 2003 Planned Program</u></b></p> <ul style="list-style-type: none"> <li>• 3682 -Continue development of technologies for MTI/SAR/MSI/HSI/EO/IR capabilities (ACS)</li> <li>• 1200 -Begin integration of spiral developed MTI/SAR/MSI/HSI/EO/IR capabilities into the system integration/demonstration ACS program phase (ACS)</li> </ul> <p>Total 4882</p>		

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<b><u>B. Program Change Summary</u></b>					FY 2001	FY 2002	FY 2003						
Previous President's Budget (FY2002 PB)					4852	6862	4894						
Appropriated Value					4898	11062	0						
Adjustments to Appropriated Value					0	0	0						
a. Congressional General Reductions					0	-90	0						
b. SBIR / STTR					0	0	0						
c. Omnibus or Other Above Threshold Reductions					0	0	0						
d. Below Threshold Reprogramming					0	0	0						
e. Rescissions					-34	0	0						
Adjustments to Budget Years Since FY2002 PB					0	0	-12						
Current Budget Submit (FY 2003 PB)					4864	10972	4882						
<p>Note: FY02 increase of \$4.2M for Hyperspectral long-wave imager.</p>													
<b><u>C. Other Program Funding Summary</u></b>					<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>To Compl</u>	<u>Total Cost</u>
0305206D00000 DARPA (ASRP)					100	0	0	0	0	0	0	0	1250
63734/T12 Rapid Terrain Visualization					0	0	0	0	0	0	0	0	11693
0203744A/028 ACS					13162	14531	49748	78305	87806	74501	8947	Continue	Continue
A02005 Aerial Common Sensor					0	0	0	0	0	0	89289	Continue	Continue

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**D. Acquisition Strategy:** The HyLITE system acquisition strategy provided for the award of an R&D effort beginning in FY 1999 under best value full and open competition procedures. Data collection efforts to support analytic studies began in FY1998 using existing sensor and hardware integrated on a NVESD testbed aircraft. The MTI/SAR/MSI/HSI and multi-sensor technologies to be developed are those that are identified and found critical to the Aerial Common Sensor (ACS) program based upon the ACS Concept Exploration (CE) Phase. The ACS CE phase completes in 1QFY02. It is the intent, based on competitive solicitation, to award a contract(s) for the development of these technologies that will provide yearly demonstration of the technologies and transition into the ACS baseline program.

<b><u>E. Schedule Profile</u></b>	<b><u>FY 2001</u></b>	<b><u>FY 2002</u></b>	<b><u>FY 2003</u></b>	<b><u>FY 2004</u></b>	<b><u>FY 2005</u></b>	<b><u>FY 2006</u></b>	<b><u>FY 2007</u></b>
XVIII Airborne Corps WFX; Interferometric Synthetic Aperture Radar (IFSAR)	3Q						
Functional Capability Demo at JPSD IEC (IFSAR)	3Q						
End to End Demonstration (IFSAR)	4Q						
Provide Leave Behind Support (IFSAR)	1-4Q						
Develop HyLITE	1-4Q	1-3Q					
HyLITE Algorithm Design/Implementation (day/night) and analysis	2-4Q	1-4Q	1-2Q				
HyLITE Aircraft Integration		3-4Q					
HyLITE Test and Demonstrate		3-4Q	1-2Q				
HyLITE tactical capability (stabilization and MW imager)		2-4Q	1-2Q				
ACS MTI/SAR/MSI/HSI/EO/IR technology contract		2-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
ACS MTI/SAR/MSI/HSI/EO/IR technology demonstrations			3-4Q	4Q	4Q	4Q	4Q
ACS MS B Decision Review			3Q				

ARMY RDT&E COST ANALYSIS(R-3)									February 2002			
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I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Labor; IFSAR	FF/SS/MIPR	Sandia Nat'l Labs, CA	1041	442	1Q	0		0		0	1483	1483
b . Travel; IFSAR	FF/SS/MIPR	Sandia Nat'l Labs, CA	89	38	1Q	0		0		0	127	127
c . Systems Management; IFSAR	FF/SS/MIPR	Sandia Nat'l Labs, CA	1395	595	1Q	0		0		0	1990	1990
d . Systems Engineering ; IFSAR	FF/SS/MIPR	Sandia Nat'l Labs, CA	1681	726	1Q	0		0		0	2407	2407
e . Software Engineering ; IFSAR	FF/SS/MIPR	Sandia Nat'l Labs, CA	206	183	1Q	0		0		0	389	389
f . Development Support; HyLITE	C/CPFF	BAE Systems, NY	4506	1471	1Q	4139	1-2Q	0		0	10116	10116
g . ACS Technology contract for MTI/SAR/MIS/HSI/EO/IR	C-CPXF	TBD	0	0		4628	2Q	4103	1Q	Continue	Continue	Continue
Subtotal:			8918	3455		8767		4103		Continue	Continue	Continue

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II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Systems Engineering IFSAR	MIPR	Sandia Nat'l Labs, CA	400	0		0		0		0	400	400
b . Testing Support; IFSAR	MIPR	Sandia Nat'l Labs, CA	75	0		0		0		0	75	75
c . Technical Support; IFSAR	MIPR	Sandia Nat'l Labs, CA	15	45	1Q	0		0		0	60	60
d . Configuration Mgt.; IFSAR	MIPR	Sandia Nat'l Labs, CA	15	45	1Q	0		0		0	60	60
e . Equipment; IFSAR	MIPR	Sandia Nat'l Labs, CA	105	45	1Q	0		0		0	150	150
f . System Engineering; HyLITE	C/T&M	EOIR, Fredricksburg VA	840	75	1Q	700	2Q	0		0	1615	1615
g . Technical Support; HyLITE	C/T&M	SAIC Corp, San Diego, CA	150	78	1Q	0		0		0	228	228
h . Technical Support; HyLITE	C/T&M	IDA; Washington, DC	60	100		100	2Q	0		0	260	260
Subtotal:			1660	388		800		0		0	2848	2848

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III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Systems Evaluation; IFSAR	MIPR	Sandia Nat'l Labs, CA	980	420	1Q	0		0		0	1400	1400
b . Systems Evaluation: HyLITE	MIPR	BCBL; Ft. Huachuca AZ	10	0		0		0		0	10	10
c . Test & Demonstration; HyLITE	MIPR	CECOM; NVSED, NJ	142	0		780	2Q	0		0	922	922
d . ACS Integration and Demonstration of MTI/SAR/MSI/HSI/EO/IR technologies	Multiple	TBD	0	0		0		500	1Q	Continue	Continue	Continue
Subtotal:			1132	420		780		500		Continue	Continue	Continue

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IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Program Management; IFSAR	MIPR	Sandia Nat'l Labs	398	70	1Q	0		0		0	468	468
b . Government Engineering Support; IFSAR	MIPR	CECOM, NVESD	715	350	1Q	0		0		0	1065	1065
c . Program & Engineering Support; HyLITE	MIPR	CECOM; NVESD	734	181	1Q	350	2Q	0		0	1265	1265
d . ACS Program & Engineering Support; MTI/SAR/MSI/HSI/EO/IR	MIPR	CECOM; I2WD	0	0		275	1Q	279	1Q	Continue	Continue	Continue
Subtotal:			1847	601		625		279		Continue	Continue	Continue
Project Total Cost:			13557	4864		10972		4882		Continue	Continue	Continue